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COUNTRY	USSR (Kalinin Oblast)	REPORT		50X1			
SUBJECT	Development of Borhydride Fuel at Zavod No. 1, Podberezye	DATE DISTR.	31 March 1	954			
		NO. OF PAGES	4				
DATE OF INFO.			!	50X1-HUM			
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	THE SOURCE EVALUATIONS IN THIS REPORT THE APPRAISAL OF CONTENT IS TE (FOR KEY SEE REVERSE)						
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Comments:

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- 1. For Aviation Ministry in Paragraph 1, read Ministry of the Aviation Industry.
- 2. For Chemical Industry in Paragraph 1, read Ministry of the Chemical Industry.

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	on-Type Rocket Fuels		4.
l. Near the en order from engines. T office in t the Chemica	d of 1949 the Chemical Group of OKB II the Soviets to produce boron compounds he order, came originally he Aviation Ministry, possibly even fr l Ministry. Primary interest was expr ompounds, and particularly those that	for use in rocket from a chemical om an office of essed in the B ₄	50X1-HUM
2. The Chemica basis of wh chemicals. were begun instruction	l Group was to receive an official wri ich they would be able to procure appa Although this was never received, prel at the beginning of 1950 on the basis s. Dr. DUNKEN was to direct this work Chemical Group were assigned the foll	ratuses and iminary projects of the verbal and the special-	

Dr. DANIEL worked on the production of magnesium boride, Mg_3B_2 , and the production of boron bromide, BBr_3 .

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- b. Dr. HAHN worked on the development of analytical methods for detecting boron compounds. All his work was based on methods given in available literature.
- c. Dr. JANKE worked on the reduction of boron bromide to borhydride by electrical charges in the presence of hydrogen.

There was a little doubt in his mind because of the lapse of time, and he stated that it possibly could be BARIO, but he was more inclined to think that it was the former. He was not prompted or asked if the second formula could apply, but merely recalled that it might have been. At any rate the material under study belonged to the liquid homologues of the BARMILY. He referred to the fuel verbally as borhydride.

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d. Mr. STEFFES was to attempt the production of borhydride by catalytic reduction of boron bromide with hydrogen,

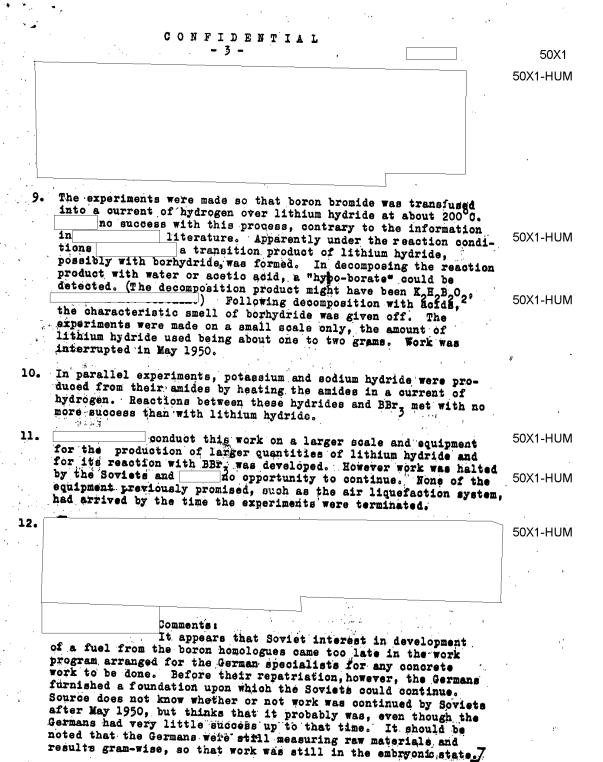
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- 3. The work of Dr. DANIEL began with the production of magnesium boride by reduction of sodium borate. Elementary boron was also produced by this method and converted with bromine to boron bromide. About 500 to 1000 grams of boron bromide were produced in the first quarter of 1930 and were used in other experiments.
- 4. Dr. HAHN was charged with working out and testing the analytical methods described in literature so that the subsequent analytical work and especially the detection of small amounts of boron could be done. The main method onsidered was a colorimetric one.
- 5. Dr. JANKE's work began with the development of an apparatus for his electrical process, but he had little success up until May 1950. At that time the Soviets canceled all further work by the Germans.
- 6. Dr. STEFFES was supposed to reduce boron bromide to borhydride by catalytic reduction with hydrogen. For this purpose a high vacuum apparatus was constructed, using materials available at the laboratory, and the experiments to develop a suitable catalyst were started. Carbon tetrachloride was used to test the effectiveness of the catalysts under study.
- 7. This project, which was still being worked on in May 1950, showed some success at the beginning. Partial separation of the chlorine from carbon tetrachloride at about 350°C in the presence of hydrogen occurred,

were under study at this time. They had been produced according to information available in their literature, especially a book by Frankenburger, entitled "Catalysts."

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